In the Specification:

[0005] An electrical spring connection assembly electrically connects a conducting case, having a predetermined case diameter, and a spark plug. The electrical spring connection assembly includes a base having a securing aperture for receiving a portion of the conducting case therein. The base fixedly secures the electrical spring connection assembly within the conducting case. The electrical spring connection assembly also includes a leaf spring portion that extends radially out from the base for receiving the spark plug therein. The leaf spring portion creates a receiving force the spark plug must overcome to be positioned within the electrical spring connection assembly. The electrical spring connection assembly also includes a beam spring extending out from the leaf spring portion. The beam spring portion creates a retention force to retain the spark plug within the electrical spring connection assembly. The retention force is greater than the receiving force.

[0007] Figure 1 is a cross-sectional side view of a spark plug, a conducting case ~~high voltage terminal~~ and a pencil ignition coil case, partially cut away;

[0008] Figure 2 is an exploded perspective view of one embodiment of the invention being inserted into a conducting case ~~high voltage~~ terminal; and

[0009] Figure 3 is a cross-sectional side view of the invention inserted into a conducting case ~~high voltage terminal~~ with a spark plug head shown in two positions being inserted therein.

[0010] Referring to the Figures, one embodiment of the invention, an electrical spring connection assembly, is generally indicated at 10. The electrical spring connection assembly 10 is used to electrically connect a high voltage terminal (not shown) within a pencil ignition coil case 12 to a spark plug 14 having a spark plug head 16. Intermediate the pencil ignition coil case 12 and the spark plug head 16 is a conducting case 18. The conducting case 18 defines a cylindrical cavity 20 having a predetermined case ~~terminal~~ diameter 22 (Figure 3). The conducting case 18 also includes a recess 24 for receiving a portion of the high voltage terminal that is housed within the pencil ignition coil case 12. The conducting case 18 also includes a flange 26 to properly position and retain the conducting case 18 with respect to the pencil ignition coil case 12.

[0012] The electrical spring connection assembly 10 includes a base 36. The base 36 includes a securing aperture 38 for receiving the recess 24 of the conducting case 18 therein. This allows the electrical spring connection assembly 10 to be fixedly secured to the conducting case 18. The electrical spring connection assembly 10 also includes a leaf spring portion 40 that extends radially out from the base 36. The leaf spring portion 40 receives the spark plug 14 therein. The leaf spring portion 40 includes a bend 42 that extends between the leaf spring portion 40 and the base 36. The bend 42 does not engage the conducting case 18. More specifically, the bend 42 defines a bend diameter 44 that is less than the predetermined case ~~terminal~~ diameter 22 of the high voltage terminal 18. This allows the leaf spring portion 40 to move relative to the cylindrical cavity 20 during insertion of the spark plug head 16 and to the electrical spring connection assembly 10. The leaf spring portion 40 creates an engagement force 45 that must be overcome to insert the spark plug head 16 therein.